



Spark Gap

Vol. 34, Issue 4, April 2017 *MARC - Serving Central Indiana Communities for thirty-four years*

On our MARC:

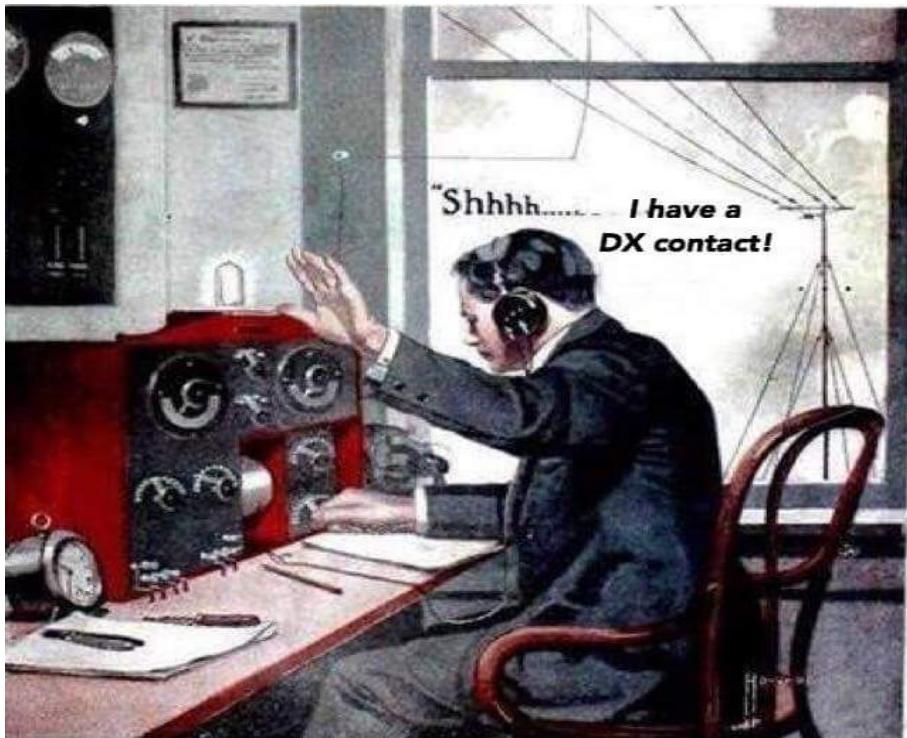
A big thanks going out to Chris, KQ9Y, for handling the antenna class on April 8. I understand that we had about ten people there. The class was held from 8-11. Hopefully, Chris will talk about the class at this months meeting.

May is the start of a summer full of Amateur Radio related activities. It kicks off with the Dayton Hamfest in May, followed by the Strawberry Fest and Field Day in June. Then September brings the Heartnut Fest and the Radio Club annual picnic. I hope everyone will get a chance to stop by some of the activities. Just to let you know, Strawberry Fest is June 9th & 10th. This has been confirmed with an employee of White River Township Fire Department. We will be there from 10 to 6 on Saturday the 10th.

I understand that we have a speaker for this month. I don't have all the details but I know it's about CERT. Just a reminder, if you know of anyone that you would like to have as a speaker, please let Ron K9THR or Phil, AE9H know. They are looking for speakers. If you are willing to speak on a subject, please let them know.

Hope to see you on Saturday.

Jacki, KI6QOG ***President***





Birthdays for the month of April:

KI6QOG - Jacki Frederick
KD9FHI - Bob Cloutier

Interesting gadgets I wish I had time for

By Dan Romanchik, KB6NU

I'm on a lot of mailing lists and participate in a bunch of amateur radio forums. As a result, I see a lot of interesting gadgets that guys are buying or are thinking about buying. Here are three of the latest that look interesting to me. I wish I had time (and money) to purchase all of these and try them out.

Android antenna analyzer

On Reddit

(https://www.reddit.com/r/amateurradio/comments/60nnpl/finally_got_my_mini60_ebay_antenna_analyzer_time/), some of the guys have been talking about the Mini60 Antenna Analyzer (<http://www.ebay.com/itm/CW-USB-Interface-Cable-WINKEYER-compatible-3-5mm-plug-/132121085623?hash=item1ec307c6b7:g:up8AAOSw241YeTei>). Its frequency range is 1 – 60MHz, but the cool thing about this device is that you can use it standalone with the built-in LCD display or with some software (http://www.jtelectronics.co.nz/information_links/MINI60/Add-Bluetooth-Module-To-MINI60-Antenna-Analyser.htm) and a tablet with a Bluetooth interface to get fancy frequency vs. SWR plots. See <http://www.kb6nu.com/wp-content/uploads/2017/03/mini60-ant-analyzer.jpg> for a photo of the Mini60 Antenna Analyzer being used with an Android tablet.

Of course, this is made in China, but how can you beat the price? It costs \$112 shipped.

Multi-functional component tester

Here's another marvel of Chinese engineering and manufacture – a smart component tester (http://www.banggood.com/3_5inch-Colorful-Display-Multi-functional-TFT-Backlight-Transistor-Tester-p-1083042.html) for only \$30, shipped. It identifies and characterizes NPN and PNP transistors, capacitors, resistors, diodes (including Zener diodes), N-channel and P-channel MOSFET, IGBT, JFET, triacs, and batteries.

This isn't the first smart component tester to hit the market, but the unique thing about this unit is that it has a graphical display that not only identifies the type of component that you've connected to it, but also draws the schematic symbol of the part. You can see a video of this tester in action at <https://www.youtube.com/watch?v=07FH6tjzwWg>.

Make your Raspberry Pi into a desktop PC

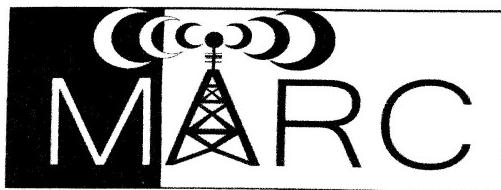
Newark/element 14 will soon start selling a kit of part that will make it easier to turn your Raspberry Pi into a desktop PC (https://www.element14.com/community/docs/DOC-83477?CMP=e-email-SEPO-210317-e14PI&et_cid=28941683&et_rid=1231362216&cmp=). The kit includes:

- Intelligent and Safe Power Controller
- Interface to connect mSATA SSD (upto 1TB)
- Real Time Clock to keep track of time
- Heat Sink
- Enclosure

They don't list the price just yet, but this might be what I need to actually make use of the Raspberry Pi 3 I bought several months ago.

If you have one of these gadgets, or buy one in the future, please let me know how you like it. I'll put your review up on my blog, so that everyone can benefit from your experience.

When he's not drooling over electronic gadgets, Dan blogs about amateur radio at KB6NU.Com, writes the "No Nonsense" amateur radio study guides, and teaches ham classes. You can contact him by e-mailing cwgeek@kb6nu.com.



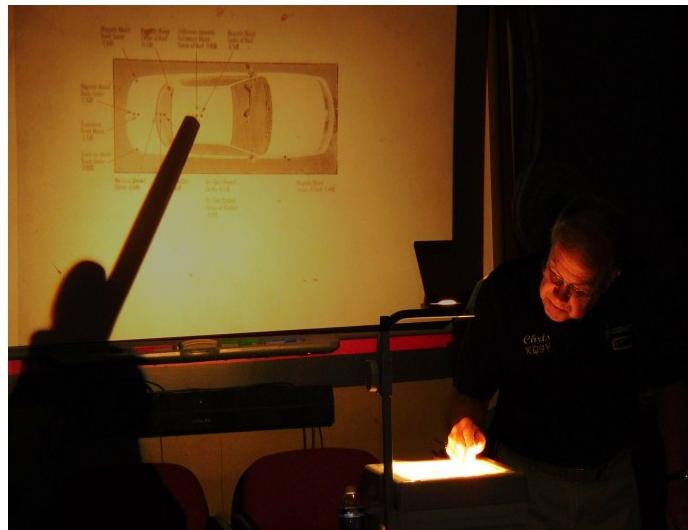
KQ9Y Antenna Class

Finding the right direction for your radio signal can be difficult unless you study the science of antenna design and RF radiation. In a continuing effort to educate and inspire club members to explore the wonderful world of radio science, Chris Frederick, KQ9Y conducted a half day workshop on antenna science April 8th. The morning seminar touched on the basics of vertical and horizontal antennas used for working 2 meters down to the HF bands of Amateur Radio.

As club repeater trustee, Chris explained the math and science of placing your mag mount in the proper location on the roof of your car for maximum output. As a FCC 1st Class broadcast engineer, Frederick has spent a lifetime studying the art of RF signals.

His four hour class covered many antenna topics and served as a building block for understanding the hobby we love as Amateur Radio. Nearly a dozen MARC members attended the class. Chris and Club VP Bruce Tisdale, K9ICP, plan to conduct more educational workshops throughout the year. Stay tuned for more from your MARC technical committee.

-Jack W8ISH



New Bands! FCC Issues Amateur Radio Service Rules for 630 Meters and 2,200 Meters

The Amateur Service will officially get two new bands in the near future. The FCC has adopted rules that will allow Amateur Radio access to the 630 and 2,200-meter bands, with minor conditions. A *Report and Order* ([R&O](#)) was released on March 29. The new rules become effective 30 days following publication in *The Federal Register*. The R&O, which also addresses several non-Amateur Radio issues, allocates the 472-479 kHz band (630 meters) to the Amateur Service on a secondary basis and amends Part 97 to provide for Amateur Service use of that band as well as of the previously allocated 135.7-137.8 kHz band (2,200 meters). The R&O also amends Part 80 rules to authorize radio buoy operations in the 1900-2000 kHz band under a ship station license.

"It's a big win for the Amateur community and the ARRL," ARRL CEO Tom Gallagher, NY2RF, said. "We are excited by the FCC's action to authorize Amateur Radio access for the first time on the MF and LF spectrum."

The FCC said the Amateur Radio service rules it has adopted for 630 meters and 2,200 meters allow "for co-existence with Power Line Carrier (PLC) systems that use these bands." Utilities have opposed Amateur Radio use of the MF and LF spectrum, fearing interference to unlicensed Part 15 PLC systems used to manage the power grid.

Amateurs operating on 472-479 kHz would be permitted a maximum equivalent isotropically radiated power (EIRP) of 5 W, except in parts of Alaska within 800 kilometers (approximately 496 miles) of Russia, where the maximum would be 1 W EIRP. Amateurs operating in the 135.7-137.8 kHz band could run up to 1 W EIRP.

The FCC is requiring a 1-kilometer separation distance between radio amateurs using the two new bands and electric power transmission lines with PLC systems on those bands. Amateur Radio operators will have to notify UTC of station location prior to commencing operations.

The FCC also placed a 60-meter (approximately 197 feet) above-ground-level (AGL) height limit on transmitting antennas used on 630 meters and 2,200 meters. The bands would be available to General class and higher licensees, and permissible modes would include CW, RTTY, data, phone, and image. Automatically controlled stations would be permitted to operate in the bands. More details soon, on the ARRL website.

..... ARRL News April 2017



The Netherlands Modifies 5 MHz Amateur Radio Privileges to Conform with WRC-15

Telecommunication regulators in the Netherlands have scaled back considerably the liberal 60-meter privileges announced for radio amateurs in that country just days after the conclusion of World Radiocommunication Conference 2015 (WRC-15). Since December 2015, amateurs in the Netherlands have had access to a 100-kHz wide amateur band at 5 MHz, with a maximum power of 100 W.

The Netherlands was able to do this because Article 4.4 of the ITU [Radio Regulations](#) permits countries to authorize frequency assignments that are contrary to the international *Table of Allocations*, only on a non-interference, non-protected basis.

[VERON](#), the IARU member society in the Netherlands, now reports that starting on April 1, Dutch radio amateurs will have to be content with the global secondary 15 kHz-wide allocation of 5351.5 kHz to 5366.5 kHz at up to 15 W effective isotropic radiated power that was agreed to at WRC-15.

"This outcome of WRC 2015 is implemented by means of the present modification of the scheme," VERON said.

The ARRL has petitioned the FCC to allocate a contiguous 5 MHz band in the US while retaining four of the five channels already in use.

Radio amateurs in the Netherlands also will be permitted to conduct cross-band and duplex 50 MHz/70 MHz communication, starting on April 1.

..... ARRL NEWS APRIL 2017



2017 Events Needing Ham Radio Support.

Mike Palmer, N9FEB is looking for some volunteers to help out this year for the following events. If you can help him out, please contact him at 317-849-3602 (home) or 317-753-8691 (cell).

The dates and events are:

- | | |
|------------|--|
| Sat May 6 | Mini Marathon |
| Sat May 27 | 500 Festival Parade |
| Sat Aug 5 | Indy Air Race (NOT the Red Bull) |
| Sat Oct 7 | American Diabetes Tour-de-Cure Bike Ride |
| Sat Oct 7 | Indpls Half Marathon in Lawrence |
| Sat Nov 4 | Monumental Marathon |

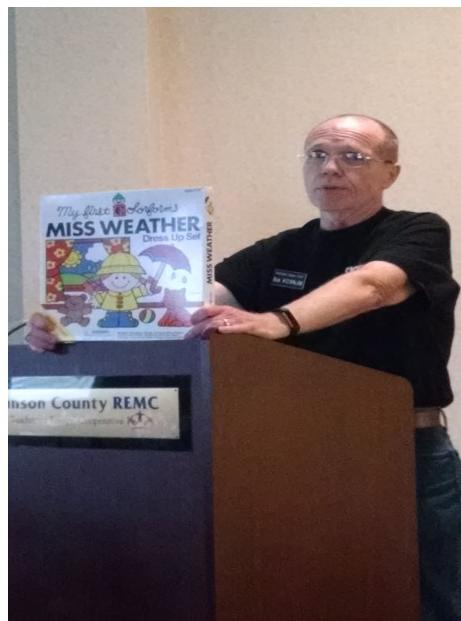
Sat Oct 7 there are two events taking place; ADA Bike Ride and the Half Marathon in Lawrence. Mike is planning on working them both simultaneous however, if you sign up for that day, he will only be assigning you to one of them.



WWW.ARRL.ORG

SkyWarn 2017

Bob Jones, KB9NJM gave a presentation of the importance of being weather aware during times of severe weather. He emphasized that as HAM Radio Operators that we should be diligent in being aware of hazardous conditions that the weather may bring to our county and surrounding communities. Please make sure that your weather radio is set for your community and that you pay attention when severe weather is near your home. The SkyWarn frequency for Johnson county is 146.835 – with a PL of 141.5 Hz. We all need to be vigilant of severe weather in and around our communities.



UP – COMING ACTIVITIES AND HAMFESTS

**04/15/2017 – 0800 - MARC Monthly club meeting at the New Location,
Johnson County REMC 750 International Drive Franklin, IN 46131.**

**05/20/2017 – 0800 - MARC Monthly club meeting at the New Location,
Johnson County REMC 750 International Drive Franklin, IN 46131.**

**05/19, 20 &21/2017 – Dayton HAMVENTION new location
Green County Fairgrounds and Expo Center, 120 Fairground Rd. Xenia, OH 45385**

06/9,10/2017 – White River Fire Department Strawberry Festival TBA

**06/17/2017 – 0800 - MARC Monthly club meeting at the New Location,
Johnson County REMC 750 International Drive Franklin, IN 46131.**

06/24/2017 – ARRL Field Day, location TBA

**07/15/2017 – 0800 - MARC Monthly club meeting at the New Location,
Johnson County REMC 750 International Drive Franklin, IN 46131.**

**08/19/2017- 0800 MARC Monthly meeting at the New Location.
Johnson County REMC 750 International Drive Franklin, IN 46131.**

**09/16/2017– 0800 - MARC Monthly club meeting at the New Location,
Johnson County REMC 750 International Drive Franklin, IN 46131.**



MID-SATE AMATEUR RADIO CLUB

The Mid-State Amateur Radio Club meets the THIRD SATURDAY of each month
at the Johnson County REMC 750 International Drive Franklin, IN 46131.

See our website, www.midstatehams.org, for maps on how to get to our meeting.

Everyone is welcome; you do not have to be a *HAM* to attend our meetings or a member of the club.

WA9RDF Repeaters:

146.835/
146.235 MHz
(151.4 Hz PL Tone)

Club Officers:

President: Jacki Frederick – KI6QOG
Vice President: Bruce Tisdale -- K9ICP
Secretary: Rhonda Curtis – WS9H
Treasurer: Marlys Barr – KD9BHM
Repeater Trustee - Chris Frederick – KQ9Y

WA9RDF Repeater:

443.525/
448.525 MHz
(151.4 Hz PL Tone)

Weekly Net: Sunday evening 7:00 PM ARES/RACES members and ALL RADIO AMATEURS
146.835/146.235 MHz (151.4 Hz PL Tone)

The Official Newsletter of the Mid-State Amateur Radio Club

P.O. Box 836
Franklin, Indiana
46131

Spark Gap Editor: Robert LaGrange N9SIU

Please send your articles to my email: n9siu@yahoo.com no later than the 3rd of the month



Special thanks to Johnson County REMC for the use of their community room for meetings and testing.